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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/564,633	01/13/2006	Hiroaki Watanabe	050825	2119

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EXAMINER	
SHEWAREGED, BETELHEM	
ART UNIT	PAPER NUMBER
1794	

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Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Office Action Summary	Application No.	Applicant(s)	
	10/564,633	WATANABE ET AL.	
	Examiner	Art Unit	
	Betelhem Shewareged	1794	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE *3* MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *04 March 2009*.

2a)☐ This action is **FINAL**. 2b)☒ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *2,3 and 6-20* is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *2,3 and 6-20* is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☐ The drawing(s) filed on _____ is/are: a)☐ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☒ All b)☐ Some * c)☐ None of:

1.☒ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☒ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☐ Information Disclosure Statement(s) (PTO/SB/08) Paper No(s)/Mail Date _____.
4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____.
5) ☐ Notice of Informal Patent Application
6) ☐ Other: _____.

DETAILED ACTION

1. Applicant's response filed on 03/04/2009 has been fully considered. Claims 2 and 3 are amended, claims 1, 4-7 and 9-12 are canceled, claims 14-20 are added, and claims 2, 3 and 6-20 are pending.

2. UPON FURTHER CONSIDERATION THE FOLLOWING PRIOR ART REJECTION HAVE BEEN PROVIDED.

Claim Objections

3. Claims 6 and 7 are objected to because of the following informalities:

4. Claim 6 recites the limitation "the inorganic ultrafine particles" in line 13. There is insufficient antecedent basis for this limitation in the claim.

5. Claim 7 recites the limitation "the inorganic ultrafine particles" in line 14. There is insufficient antecedent basis for this limitation in the claim.

6. In claim 7, line 10, the term "an ink jet recording material according to claim 1," is redundant.

Appropriate correction is required.

Claim Rejections - 35 USC § 103

7. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

8. Claims 6, 3 and 9-12 are rejected under 35 U.S.C. 103(a) as being unpatentable over Kiyama et al. (US 2003/0072925 A1) in view of Mukoyoshi et al. (US 6,187,430 B1) and Nagashima et al. (US 2002/0182380 A1).

9. Claim 6: Kiyama teaches an ink jet recording material comprising a support, an ink receptive layer (A) nearer to the support and an ink receptive layer (B) apart from the support, wherein the ink receptive layer (A) comprises fumed silica and the ink receptive layer (B) comprises alumina hydrate (abstract). Kiyama does not teach the use of alumina hydrate in both the ink receptive layers. However, Nagashima teaches an ink jet recording material comprising at least one ink receptive layer (abstract). At least one ink receptive layer includes two ink receptive layers. The ink receptive layers comprise alumina hydrate as inorganic particles [0030]. Kiyama and Nagashima are analogous art because they are form the same filed of endeavor that is the ink jet recording medium art. At the time of the invention, it would have been obvious to a person of ordinary skill in the art to replace the fumed silica of Kiyama with the alumina hydrate of Nagashima , and the motivation would be enhance the ink fixing property of the layers because of the positive charges that are present in the alumina hydrate. The ink receptive layer (A) in combination with Nagashima meets the claimed first ink receiving layer and the ink receptive layer (B) meets the claimed second ink receiving layer. The ink receptive layer (A) further comprises a binder [0034], and a boric acid or borate [0054]. The support can be a paper [0016].

10. Kiyama does not teach having a pigment/undercoat layer between the support and the ink receptive layer (A). However, Mukoyoshi teaches an ink jet recording sheet

comprising a substrate and an ink receiving layer (abstract). The recording sheet further comprises an undercoat layer between the substrate and the ink receiving layer (col. 5, line 12). The undercoat layer comprises a pigment having a secondary particle size of 2-8 um (col. 5, line 34). 50% or more includes 100%, and since Mukoyoshi is silent with respect to the vol. % of particles having secondary particle size of 2-8um, it is interpreted that 100 vol. % of the pigments have secondary particle size of 2-8um. Thus the claimed limitation of "50% by volume or more of the total volume of the pigment has a secondary particle diameter of not less than 1.2 um and not more than 15 um." has been met. Kiyama and Mukoyoshi are analogous art because they are from the same filed of endeavor that is the ink jet recording medium art. At the time of the invention, it would have been obvious to a person of ordinary skill in the art to combine the undercoat layer of Mukoyoshi with the invention of Kiyama, and the motivation for combining would be, as Mukoyoshi suggests, enhancing the ink absorbing capacity of the resultant ink jet recording sheet (col. 5, line 14-16).

11. With respect to the coating amount of the claimed first ink receiving layer, the experimental modification of this prior art in order to ascertain optimum operating conditions fails to render applicants' claims patentable in the absence of unexpected results. *In re Aller*, 105 USPQ 233. One of ordinary skill in the art would have been motivated to adjust the coating amount, and the motivation would be to control the ink absorbing property of the layer. A prima facie case of obviousness may be rebutted, however, where the results of the optimizing variable, which is known to be result-

effective, are unexpectedly good. *In re Boesch and Slaney,* 205 USPQ 215. MPEP 2144.05.

12. Claim 3: With respect to the pH value of the pigment layer and the first ink receiving layer, one of ordinary skill in the art would have been motivated to adjust the pH values, and the motivation would be to optimize the hardening and thickening properties of the layers while maintaining enhanced ink absorbing property of the recording medium. MPEP 2144.05.

13. Claim 9: Kiyama teaches the ink receptive layers further comprises a cationic compound of basic poly(aluminum hydroxide) [0049].

14. Claim 10: Kiyama teaches the ink receptive layers further comprise a boric acid or borate [0054].

15. Claims 11 and 12: The Office realizes that all of the claimed effects or physical properties are not positively stated by the reference(s). However, the reference(s) teaches all of the claimed ingredients. Therefore, the claimed effects and physical properties, i.e. specular gloss and gas permeability would implicitly be achieved by a composite with all the claimed ingredients. If it is the applicant's position that this would not be the case: (1) evidence would need to be provided to support the applicant's position; and (2) it would be the Office's position that the application contains inadequate disclosure that there is no teaching as to how to obtain the claimed properties with only the claimed ingredients.

16. Claims 2 and 13 are rejected under 35 U.S.C. 103(a) as being unpatentable over Kiyama et al. (US 2003/0072925 A1) in view of Mukoyoshi et al. (US 6,187,430 B1) as applied to claim 6 above, and further in view of Totani et al. (US 2001/0009712 A1).

17. Claim 2: Kiyama and Mukoyoshi teach the claimed invention as set forth above. Mukoyoshi does not teach the oil absorption value of the pigment in the undercoat layer. However, Totani teaches an ink jet recording sheet comprising undercoat layer containing a pigment having oil absorption of 250ml/100g [0054]. Mukoyoshi and Totani are analogous art because they are from the same field of endeavor that is the ink jet recording medium art. At the time of the invention, it would have been obvious to a person of ordinary skill in the art to combine the teaching of Totani (i.e., selecting the oil absorption of the pigment to be 250ml/100g) with the invention of Mukoyoshi, and the motivation would be, as Totani suggests, controlling the water resistance property of the recording sheet [0054]. Furthermore, at the time of the invention it would have been obvious to a person of ordinary skill in the art to combine the above combined teaching of Mukoyoshi and Totani with the invention of Kiyama, and the motivation for combining would be, as Mukoyoshi suggests, enhancing the ink absorbing capacity of the resultant ink jet recording sheet (col. 5, line 14-16).

18. Claim 13: The Office realizes that all of the claimed effects or physical properties are not positively stated by the reference(s). However, the reference(s) teaches all of the claimed ingredients. Therefore, the claimed effects and physical properties, i.e. gas permeability would implicitly be achieved by a composite with all the claimed ingredients. If it is the applicant's position that this would not be the case: (1) evidence

would need to be provided to support the applicant's position; and (2) it would be the Office's position that the application contains inadequate disclosure that there is no teaching as to how to obtain the claimed properties with only the claimed ingredients.

19. Claims 7, 8 and 15-19 are rejected under 35 U.S.C. 103(a) as being unpatentable over Kiyama et al. (US 2003/0072925 A1).

20. Claim 7: Kiyama teaches an ink jet recording material comprising a support, an ink receptive layer (A) nearer to the support and an ink receptive layer (B) apart from the support, wherein the ink receptive layer (A) comprises fumed silica and the ink receptive layer (B) comprises alumina hydrate (abstract). The ink receptive layer (A) meets the claimed first ink receiving layer and the ink receptive layer (B) meets the claimed second ink receiving layer. The secondary particle size of the fumed silica is about 50 to 300 nm [0018]. The ink receptive layer (A) further comprises a binder [0034], and a boric acid or borate [0054]. The support can be a paper [0016]. Kiyama does not teach having a pigment/undercoat layer between the support and the ink receptive layer (A). However, Mukoyoshi teaches an ink jet recording sheet comprising a substrate and an ink receiving layer (abstract). The recording sheet further comprises an undercoat layer between the substrate and the ink receiving layer (col. 5, line 12). The undercoat layer comprises a pigment having a secondary particle size of 2-8 um (col. 5, line 34). 50% or more includes 100%, and since Mukoyoshi is silent with respect to the vol. % of particles having secondary particle size of 2-8um, it is interpreted that 100 vol. % of the pigments have secondary particle size of 2-8um. Thus

the claimed limitation of "50% by volume or more of the total volume of the pigment has a secondary particle diameter of not less than 1.2 um and not more than 15 um." has been met. Kiyama and Mukoyoshi are analogous art because they are from the same filed of endeavor that is the ink jet recording medium art. At the time of the invention, it would have been obvious to a person of ordinary skill in the art to combine the undercoat layer of Mukoyoshi with the invention of Kiyama, and the motivation for combining would be, as Mukoyoshi suggests, enhancing the ink absorbing capacity of the resultant ink jet recording sheet (col. 5, line 14-16).

21. With respect to the coating amount of the claimed first ink receiving layer, the experimental modification of this prior art in order to ascertain optimum operating conditions fails to render applicants' claims patentable in the absence of unexpected results. *In re Aller*, 105 USPQ 233. One of ordinary skill in the art would have been motivated to adjust the coating amount, and the motivation would be to control the ink absorbing property of the layer. A prima facie case of obviousness may be rebutted, however, where the results of the optimizing variable, which is known to be result-effective, are unexpectedly good. *In re Boesch and Slaney*, 205 USPQ 215. MPEP 2144.05.

22. Claim 8: With respect to the BET surface area relation of the silica and alumina hydrate, one of ordinary skill in the art would have been motivated to adjust BET surface area relation of the silica and alumina hydrate, and the motivation would be to control the glossiness, drying rate and ink absorbency of the recording medium. MPEP 2144.05.

23. Claim 15: With respect to the pH value of the pigment layer and the first ink receiving layer, one of ordinary skill in the art would have been motivated to adjust the pH values, and the motivation would be to optimize the hardening and thickening properties of the layers while maintaining enhanced ink absorbing property of the recording medium. MPEP 2144.05.

24. Claim 16: Kiyama teaches the ink receptive layers further comprises a cationic compound of basic poly(aluminum hydroxide) [0049].

25. Claim 17: Kiyama teaches the ink receptive layers further comprise a boric acid or borate [0054].

26. Claims 18 and 19: The Office realizes that all of the claimed effects or physical properties are not positively stated by the reference(s). However, the reference(s) teaches all of the claimed ingredients. Therefore, the claimed effects and physical properties, i.e. specular gloss and gas permeability would implicitly be achieved by a composite with all the claimed ingredients. If it is the applicant's position that this would not be the case: (1) evidence would need to be provided to support the applicant's position; and (2) it would be the Office's position that the application contains inadequate disclosure that there is no teaching as to how to obtain the claimed properties with only the claimed ingredients.

27. Claims 14 and 20 are rejected under 35 U.S.C. 103(a) as being unpatentable over Kiyama et al. (US 2003/0072925 A1) in view of Mukoyoshi et al. (US 6,187,430

B1) as applied to claim 7 above, and further in view of Totani et al. (US 2001/0009712 A1).

28. Claim 14: Kiyama and Mukoyoshi teach the claimed invention as set forth above. Mukoyoshi does not teach the oil absorption value of the pigment in the undercoat layer. However, Totani teaches an ink jet recording sheet comprising undercoat layer containing a pigment having oil absorption of 250ml/100g [0054]. Mukoyoshi and Totani are analogous art because they are from the same field of endeavor that is the ink jet recording medium art. At the time of the invention, it would have been obvious to a person of ordinary skill in the art to combine the teaching of Totani (i.e., selecting the oil absorption of the pigment to be 250ml/100g) with the invention of Mukoyoshi, and the motivation would be, as Totani suggests, controlling the water resistance property of the recording sheet [0054]. Furthermore, at the time of the invention it would have been obvious to a person of ordinary skill in the art to combine the above combined teaching of Mukoyoshi and Totani with the invention of Kiyama, and the motivation for combining would be, as Mukoyoshi suggests, enhancing the ink absorbing capacity of the resultant ink jet recording sheet (col. 5, line 14-16).

29. Claim 20: The Office realizes that all of the claimed effects or physical properties are not positively stated by the reference(s). However, the reference(s) teaches all of the claimed ingredients. Therefore, the claimed effects and physical properties, i.e. gas permeability would implicitly be achieved by a composite with all the claimed ingredients. If it is the applicant's position that this would not be the case: (1) evidence would need to be provided to support the applicant's position; and (2) it would be the

Office's position that the application contains inadequate disclosure that there is no teaching as to how to obtain the claimed properties with only the claimed ingredients.

Response to Arguments

30. Applicant's arguments with respect to claims 2, 3 and 6-20 have been considered but are moot in view of the new ground(s) of rejection.

Conclusion

31. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Betelhem Shewareged whose telephone number is (571)272-1529. The examiner can normally be reached on Monday-Friday 9am-5pm.

32. If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Keith Hendricks can be reached on 571-272-1401. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

33. Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

BS
March 19, 2009.

/Betelhem Shewareged/
Primary Examiner, Art Unit 1794